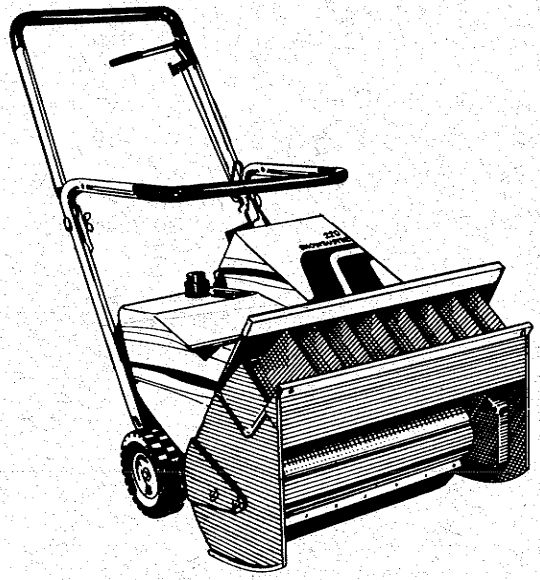

Operator's Manual Snowbuster 220

2 H.P. SNOW THROWER
MANUAL START
MFG. NO. 1690354
2 H.P. SNOW THROWER
ELECTRIC START
MFG. NO. 1690357

Simplicity®
AN ALLIS-CHALMERS COMPANY

FORM - 1664998

Dear Customer,

Your Snowbuster 220 snow thrower has been carefully designed and constructed to help you do your snow removal jobs efficiently and to give you years of dependable service. We at Simplicity believe this snow thrower is versatile enough to handle, in fact ideal for, most snow removal tasks. We also believe this snow thrower has features which make it superior to most other snow throwers of its size.

This Operator's Manual contains procedures for operating, maintaining, and adjusting your snow thrower. For your own safety, as well as that of others, read and understand the safety rules. Also read the technical information and be sure you are familiar with all controls before operating. Review this information often; it is there for your benefit and it is important. If help is needed with any of the procedures your dealer will be happy to assist you.

Measurements are given in this manual with metric equivalents in parentheses. For example, behind the measurement 1/8 inch will appear: (3 mm). So, the metric equivalent of 1/8 inch is 3 millimetres. These metric measurements are provided for your convenience as an aid in converting to the metric system. The following is a list of metric terms and abbreviations used in this manual.

LIST OF ABBREVIATIONS OF METRIC TERMS

1.	cm^3	=	**cubic centimetre**	5.	**mm**	=	**millimetre**
2.	**kg**	=	**kilogram**	6.	**N·m**	=	**newton-metre**
3.	**kW**	=	**kilowatt**	7.	**°C**	=	**degrees Celsius**
4.	**L**	=	**litre**				

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Safety Rules

Read these safety rules and follow them closely. Failure to obey these rules can result in loss of control of machine, severe personal injury to yourself or bystanders, or damage to property or equipment affecting safety. The triangle ⚠ in the text signifies important cautions or warnings which must be followed.

GENERAL

•Read the Operator's Manual carefully. Be thoroughly familiar with all controls and proper equipment use.

•Never allow children to operate the machine. Do not allow adults to operate it without proper instruction.

•Keep the area of operation clear of all persons, particularly small children, and pets.

•Never discharge material toward bystanders or allow anyone near the machine while in operation.

•Make sure:

a. snow thrower is in good operating condition,

b. all safety devices and shields are in place and working, and

c. all adjustments have been made.

PREPARATION

•Never attempt to make any adjustment while engine is running.

•Thoroughly inspect the area where the snow thrower is to be used and remove any object which could cause personal injury should it be picked up and thrown.

•Do not engage impeller control when starting engine.

•Do not operate snow thrower without wearing proper winter clothing. Wear footwear which improves footing on slippery surfaces.

•Handle gasoline with care — it is highly flammable.

a. Use approved gasoline container.

b. Never remove the fuel tank cap or add gasoline to a running or hot engine, or fill the fuel tank indoors. Wipe up spilled gasoline.

•Do not run engine indoors. Exhaust fumes are deadly.

OPERATION

•Do not use snow thrower on a roof.

•Do not use on unpaved surfaces.

•Occasionally it may be necessary to remove snow from areas where debris may be present in or under the snow. If this debris is of the nature that eye injury could be caused by ricochetting objects, approved eye protection should be worn.

•Keep hands and feet away from rotating parts. Keep clear of discharge opening at all times.

•After striking an object, disengage impeller, stop the engine, and remove the key. Inspect the snow thrower for damage before restarting.

•Never clear snow from steep slopes.

•Stay alert for hidden hazards and traffic when operating near or on roads.

•Be especially careful not to touch snow thrower parts which might be hot from operation. Allow such parts to cool before attempting to maintain, adjust, or service.

•Never operate snow thrower without guards, plates, or other safety protective devices.

•If unit starts to vibrate abnormally, disengage impeller, stop the engine, and remove the key. Check immediately for the cause. Vibration is generally a warning of trouble.

•Disengage impeller drive, stop engine, and remove ignition key when leaving the operator's position to unclog the housing or to make repairs, adjustments, or inspections.

•Take every precaution when leaving the machine unattended. Stop the engine and remove the key.

•When cleaning, repairing, or inspecting, make certain all moving parts have stopped. Remove key to prevent accidental starting.

•Never operate the snow thrower near glass enclosures, window wells, drop-offs, etc, without proper adjustment of the snow thrower discharge angle.

•Disengage impeller drive when transporting or not in use.

•Never operate the snow thrower without good visibility or light. Always be sure of your footing: walk never run.

ELECTRIC START MODELS

•Warning — This starter is equipped with a three-wire power cord and plug and is designed to operate on 120 volt AC household current. It must be properly grounded at all times to avoid the possiblity of electric shock which may be injurious to the operator. Follow all instructions carefully as set forth below. Determine that your house wiring is a three-wire grounded system. Ask a licensed electrician if you are not sure. If your house wiring system is not a three-wire grounded system, do not use this electric starter under any condition.

•When connecting 120 volt AC "Power Cord," always connect cord to receptacle on dash first, and then plug the other end into three-hole grounded power outlet.

•When disconnecting power cord, always unplug the end in the three-hole grounded power outlet first.

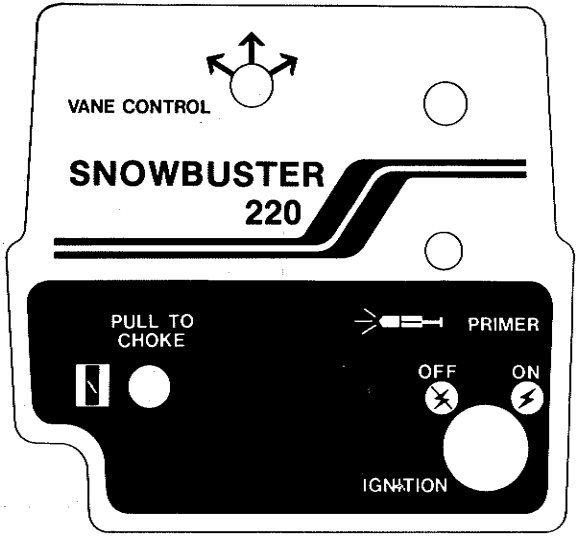
MAINTENANCE AND STORAGE

•Never store equipment with gasoline in the tank in a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.

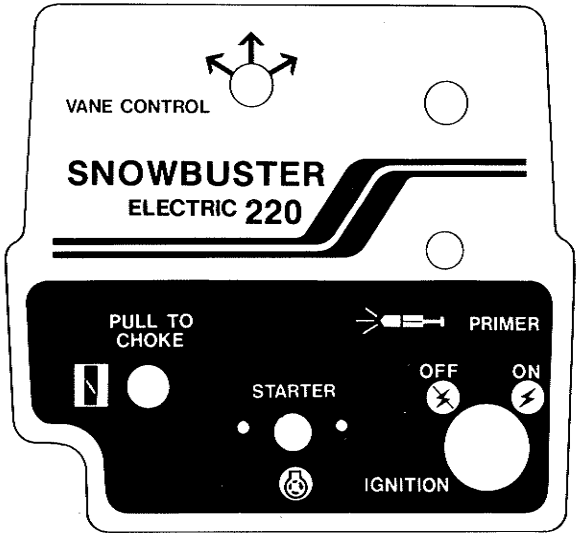
•Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

•Always refer to the Operator's Manual for important details if snow thrower is to be stored for an extended period.

ALL warning, caution, and instructional messages on your snow thrower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important. The safety and instructional messages following on the next pages are on your snow thrower.



LOCATION: Control Panel on Manual Start Models



LOCATION: Control Panel on Electric Start Models

WARNING

Keep Clear Of Impeller And Discharge Areas While Engine Is Running

LOCATION: Embossed on Both Sides of the Impeller Housing

⚠ WARNING

- Read Owner's Manual carefully before operating unit. Never allow children to operate snow thrower.
- Always direct discharge so as to avoid injury or damage to persons or property.
- Stop engine before servicing or removing debris. Keep all shields and guards in place while running.
- Keep clear of impeller and discharge while engine is running.

LOCATION: At Top of Impeller Housing Just Behind Discharge Vanes.

Safety warning signs reproduced on these pages are placed at strategic locations on the snow thrower as a constant reminder to the operator of the most important safety precautions.

If any of these signs are lost or damaged, replace them at once. They can be purchased from your dealer.

Owner Benefits

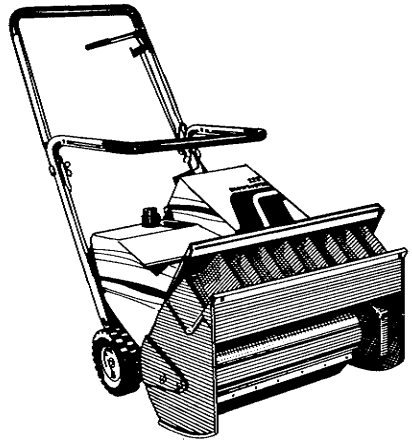
Touch-O-Matic clutch control for impeller drive provides convenient safe engaging and disengaging.

Lightweight and compact for easy lifting up steps or to hang on a wall for storage.

Handle folds down for transporting in auto trunk or for compact storage.

Handy controls located for operator convenience.

Rugged two-cycle engine designed for lightweight and smooth, efficient performance under varying conditions.



Extended muffler design (integral part of frame) for quieter operation.

Cushioning belt drive absorbs shock if an object is struck. No troublesome shear pins.

Impeller walking action aids forward movement and overall maneuverability. Replaceable rubber paddles.

Directional discharge vanes place the snow where you want it: right, left, or straight ahead.

See the rest of the Simplicity snow throwers and the full product line at your nearest authorized dealer.

BEFORE OPERATING

This snow thrower is shipped completely assembled. Do not use it without reading the Operator's Manual. Read the entire operator's manual and be sure you understand safe operating procedures and the proper use of this machine. Your safety, as well as that of others around you, is certainly worth the time it will take. Serious, permanent damage can also be done to your snow thrower if operated incorrectly.

To remove the snow thrower from the carton, remove all packing cardboard and lift the unit out. Manual start models weigh about 40 lbs. (18 kg). Electric start models weigh about 44 lbs.(20 kg) and are shipped with a three prong extension cord. Check the carton to be sure no hardware vibrated loose during transit.

Read the Operator's Manual before proceeding any further. The various sections explain how to raise the handle, prepare the unit for operation, and then how to operate safely and efficiently.

NOTE

This snow thrower is powered by a two-cycle engine which requires a fuel mixture of gasoline and oil. Failure to use the proper gasoline/oil mixture can ruin the engine in about a minute. See the Pre-Start Preparation section for complete fuel information.

This manual covers both manual and electric start models, so some photos may differ slightly from your machine.

Pre-Start Preparation

This section contains information on fuel preparation, filling the fuel tank, and on the snow thrower controls you should be familiar with before attempting to start the engine. Read this section carefully and then go on to the Operation section.

FUEL

The Tecumseh two-cycle engine powering this snow thrower requires a fuel mixture of gasoline and oil for lubrication of bearings and other moving parts. The correct fuel mixture is 32:1 (32 parts gasoline to one part oil, or one gallon of gasoline to 4 ounces of oil). Use the following fuel tips to select your gasoline and oil.

1. Use SAE 30 or 40 outboard or two cycle oil. Disregard instructions on oil containers. Do not use multi-viscosity oils; they may not provide adequate lubrication and can contain additives which cause plug fouling.
2. Use regular grade, leaded gasoline. The use of lead-free gasoline is not recommended in this engine.
3. Gasoline companies blend fuel for seasonal usage. Purchase fresh winter gasoline which is blended for cold weather starting and operation. Do not use gasoline left from summer lawn mower operation.

To premix gasoline and oil proceed as follows:

WARNING

Gasoline is highly flammable and must be handled and stored with care. Never mix gasoline or fill tank indoors, while smoking, or near an open flame or spark. Never fill the fuel tank when the engine is running or hot from recent operation.

Wipe up any fuel spills. Store gasoline container (cap secure) in a cool, well ventilated place away from flame or spark. Allow for fuel expansion in container and in fuel tank. Use care with oil too. At high temperatures or near an open flame oil is also flammable.

1. Use a clean, approved container to premix and store fuel. Do not mix oil and gasoline in snow thrower fuel tank.
2. Store oil at temperatures above 50 degrees (10° celsius) if possible so it will mix more readily with gasoline. Once mixed, oil and gasoline will not separate.
3. Mix gasoline and oil for a 32:1 ratio using the amounts specified in figure 1. Measure oil carefully.

It is best to mix oil with only a portion of the gasoline first. For a one gallon example, put 4 ounces (.125 L) of oil and one quart (.94 L) of gasoline in a one gallon container. Secure cap and shake container vigorously. Keep container away from face and eyes while shaking. After shaking add the remaining 3 quarts (2.8 L) of gasoline.

FUEL MIX CHART Mixture 32:1 (3% mixture)					
U.S.		IMPERIAL		S.I. (METRIC)	
Gas	Oil To Be Added	Gas	Oil To Be Added	Petrol	Oil To Be Added
1 Gal.	4 oz.	1 Gal.	4.5 oz.	4 Liters	.125 L
2 Gal.	8 oz.	2 Gal.	9 oz.	8 Liters	.250 L
5 Gal.	20 oz.	5 Gal.	22 oz.	20 Liters	.625 L

Figure 1

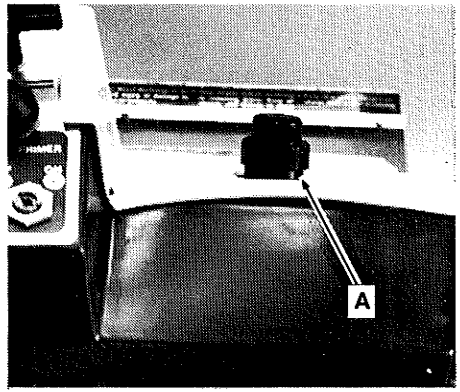


Figure 2

A. Fuel Tank Cap

Filling the Fuel Tank

To fill the snow thrower fuel tank, proceed as follows:

WARNING

For your personal safety, never fill the fuel tank indoors, while smoking, or near open flame or spark. Do not fuel a running or hot engine. Wipe up all spills. Gasoline is highly flammable.

1. Remove the fuel tank cap from the snow thrower. See figure 2. Use a funnel or telescoping spout to help avoid spills.
2. Fill the fuel tank. Be sure to leave 1/4 to 1/2 inch (6.4 to 12.7 mm) at the top for expansion.
3. Reinstall caps on fuel tank and fuel supply and wipe up all spills.

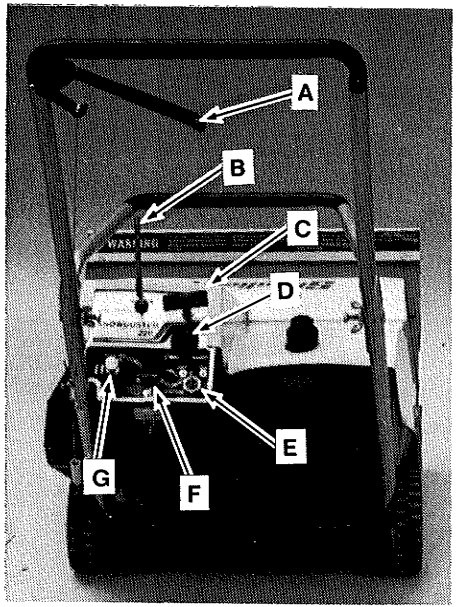


Figure 3

ITEM	NAME	FUNCTION	ITEM	NAME	FUNCTION
A	Impeller Control	Engages impeller when lifted; disengages impeller when released.	E	Ignition Switch	Allows starting and stopping of engine.
B	Vane Control	Directs snow discharge left, right, or straight ahead.	F	Electric Start Switch	Activates electric starter.
C	Rewind Starter	Pull to start engine.	G	Choke	Aids cold engine starts. Half and full choke positions.
D	Primer	Press to hand prime engine carburetor.			

SNOW THROWER CONTROLS

Figure 3 gives the locations, names, and functions of all snow thrower controls. The same control names are used throughout the manual. Thoroughly familiarize yourself with them before actually blowing snow. The Operation section which follows recommends starting and stopping procedures using these controls, and also provides tips for safe, efficient operation.

Operation

This section is designed to provide you with starting and stopping procedures and with information on safe, efficient snow thrower operation. All directions assume that your machine is in operational condition and working properly. If not, refer to the Service Information section in this manual or see your nearest authorized Simplicity dealer.

NOTE

When first operating the snow thrower, take time to get the feel of the machine before blowing snow at full capacity. Give yourself plenty of room and practice engaging and disengaging the impeller and adjusting the discharge vanes.

OPERATING PROCEDURES

Read and become familiar with the following operating directions in the order given:

- Checks before starting
- Stopping the snow thrower
- Starting the engine
- Starting snow thrower in motion
- Before leaving snow thrower

CHECKS BEFORE STARTING

Read this manual completely before the first use of your snow thrower, and thereafter as often as necessary to ensure safe and efficient operation.

Check the following before each use of your snow thrower.

1. Follow all safety precautions and know the locations and uses of operating controls. See the Safety Rules and Pre-Start Preparation sections.
2. Be sure all covers and guards are in place and all nuts, bolts, and clips are secure. Be sure impeller and directional vanes are free of ice and that impeller control engages and disengages freely.
3. Refer to Normal Care section of this manual to check for any needed care, especially if snow thrower has been in storage.
4. Fill fuel tank with gasoline/oil mixture. See Pre-Start Preparation section.

STOPPING THE SNOW THROWER

Your snow thrower is equipped with a Touch-O-Matic impeller control as a safety feature. All that is necessary to stop the impeller from rotating is to release the impeller control on the handle. All mechanical movement except the engine then stops. Turning the ignition key to OFF stops the engine.

STARTING THE ENGINE

Complete all "Checks Before Starting" steps and then proceed as follows:

1. Do not engage Touch-O-Matic impeller control. Leave the impeller disengaged (control released) when starting engine.
2. Pull choke control out to full choke position. See figure 4. When starting a warm engine, leave the choke OFF and DO NOT use the primer. Then use the choke only if engine fails to start.

NOTE

When starting a new unit for the first time, extra measures are needed to get the fuel from the tank to the carburetor. Prime engine four times, then pull starter four times. Repeat the four primes and four starter pulls procedure until the engine starts. This sequence may also be useful for starting after off-season storage when the fuel tank was drained. For all other starts, follow normal priming procedures in Step 3.

3. Prime engine. If unit has been idle for over several hours and stored in an area 15° F (-9.4° C) or colder, or weather conditions are below 15° F, prime engine four times. If unit has been stored in an area 15° F or warmer, or weather conditions are above 15° F, then two primes should provide good starting.

   To prime engine, fully depress primer bulb making sure that the vent hole is covered. Release and allow bulb to return to original position before next prime. See figure 4.

4. Put key in ignition switch and turn it to ON.

WARNING

For your personal safety, do not start or run the engine in an enclosed area. Exhaust fumes are deadly.

5. **Manual Start Models.** Grasp the rewind starter handle and pull upward with a smooth, rapid, full arm stroke. Always return starter rope slowly by hand. If engine fires but does not start after several pulls, engine may be flooded. Take choke off and pull starter several times again. If engine again fires but does not start, repeat steps 2 and 3 and try starting again.

   Electric Start Models. Plug the extension cord provided to the snow thrower **first** then to a grounded 3 wire plug-in outlet (110 volt). See electric start warnings on p. 3 of Safety Rules.

   Press starter button on dash to crank engine (see figure 4). If engine fires but does not start after 10 seconds, take choke off and try starting. If engine again fires but does not start, repeat steps 2 and 3 and repeat starting procedure. Release starter button when engine starts. Unplug cord from power source and then from snow thrower.

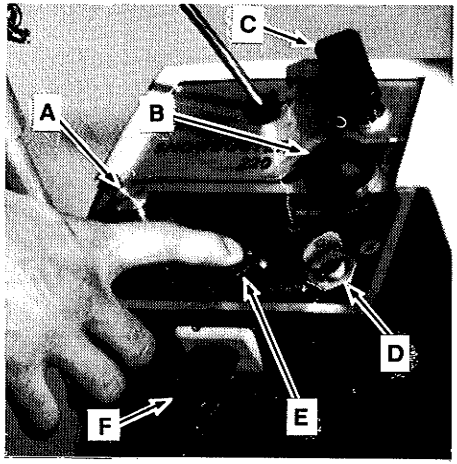


Figure 4

A. Choke
B. Primer Bulb
C. Rewind Starter
D. Key
E. Electric Start Button
F. Electric Start Cord

NOTE

Electric starter motor can be overheated. Do not run starter more than 30 seconds without cooling for 3 minutes.

6. When the engine starts, push the choke in to the half-choke position. As engine warms up and is running smooth, push choke in fully to OFF. In some instances it may be necessary to operate with the choke on, or partially on, until engine is thoroughly warmed.

STARTING SNOW THROWER IN MOTION

Although this snow thrower does not have wheel drive, the forward rotation of the

impeller paddles striking the ground provides a certain amount of "walking action" when the impeller control is engaged. This walking action aids in propelling the snow thrower forward, but it should only be used when blowing snow. Do not engage the impeller for transport purposes only.

To use the walking action, lift up on the handle so the impeller paddles make full contact with the surface and aid in propelling the unit forward.

To start throwing snow, engage the impeller control and move forward into the snow. Lift up on handle as desired to provide walking action. To stop the snow thrower, release the impeller control.

PREPARATION FOR SNOW REMOVAL

Before starting a snow removal job, prepare yourself and your snow thrower:

CAUTION

The breathing of cold, wet vapor can be hazardous to your health. On very cold, windy days keep your nose and mouth well covered.

1. Wear suitable winter clothing, including footwear to improve footing on slippery surfaces. Do not wear loose clothing or scarves which might get caught in your machine.
2. Clear the area of all objects which could be caught in or thrown by the snow thrower.

OPERATION INFORMATION

Determine the best snow removal pattern. The size, shape, terrain, and obstructions of the area to be cleared should be considered. Whenever possible, begin snow removal on the upwind side of the driveway or sidewalk so as not to blow snow over an area already cleared.

Rotate the directional vanes to discharge snow downwind, not into it. Always adjust the vanes so you are well out of the path of the snow stream. See figures 5 and 6.

Light to medium depth snow can be cleared using the full width of the impeller on each pass, overlapping the passes a few inches to prevent side spillover. See figure 6.

In deep or heavy, wet snow, the snow thrower front panel usually controls forward speed by its contact with the snow. See figure 5. In such cases let the snow thrower work at its own pace. If engine rpm drops in deep snow the impeller control can be disengaged to let engine regain momentum before moving back into snow.

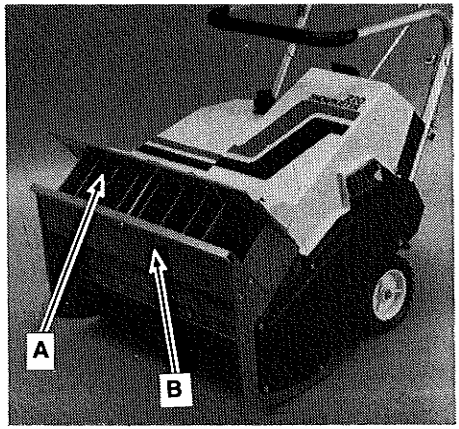


Figure 5
A. Directional Vanes
B. Front Panel

On subsequent passes in heavy snow, slice off less than the full width of the auger to prevent overloading. Judge how wide a slice to take by watching the snow stream as it leaves the housing. The snow should flow freely.

If not, take a narrower slice. Any time snow stops flowing freely, stop or back up to let the snow thrower clear itself. Then inch back into the snow again. You will soon get the feel of how fast to go and how wide a slice to take.

WARNING

For your personal safety, always stop the engine and remove the key before checking or clearing the impeller and discharge vanes.

If the impeller stalls or the vanes plug, RELEASE THE IMPELLER CONTROL IMMEDIATELY. STOP THE ENGINE AND REMOVE THE KEY. Remove any debris and clear out the housing and discharge vanes.

When clearing snow from steps or cutting through deep drifts, the snow thrower can be operated from the side using a sweeping motion as shown in figure 7. When operating from the side be sure to have solid

Figure 6

A. Overlap as necessary to prevent side spillover.

B. Set vanes to discharge snow downwind and away from cleared area.

footing, hold both handles securely, and keep your head and body behind the forward handle well out of the snow stream.

BEFORE LEAVING SNOW THROWER

1. Release impeller control to stop snow thrower motion.
2. Turn key to OFF and remove it.
3. Wipe ice and snow off control panel, upper shroud, and directional vanes to prevent melting and freezing on the unit. If snow thrower is to be stopped for an extended period, see AFTER EACH USE in the Normal Care section.

FOLDING THE HANDLE

The upper snow thrower handle can be folded down if desired for transport in an auto trunk or for compact storage. See STORAGE in the Normal Care section for handle folding procedure. Be sure snow thrower has cooled fully before placing in auto trunk.

Figure 7

A. Grip both handles firmly.

Keep head and body well back from snow stream.

Normal Care

Your snow thrower was designed and built to provide service with only minor care. The low maintenance two-cycle engine does not have crankcase oil to change.

Certain tasks, however, must be performed to keep your snow thrower in top operating condition and to avoid costly repair. Read and become familiar with the following normal care procedures in the order given:

- After each use
- Spark plug
- In-season storage
- Off-season storage
- Starting after storage
- Idler pivot lubrication

WARNING

For your personal safety, stop the engine and remove the key before attempting to inspect or service your snow thrower.

AFTER EACH USE

After each use of the snow thrower check impeller housing, discharge vanes, and controls for ice or snow. Clean out any snow that could melt and later refreeze on controls or housing.

Start the engine and let it run for a few minutes to help dry the engine area and minimize freeze-ups. The impeller control can be engaged and disengaged to help clear snow out of housing. Also rotate vanes to clear vane control linkage.

Refill the snow thrower fuel tank to help prevent condensation in the tank. See "Filling the Fuel Tank" in the Pre-Start Preparation section. Follow all safety procedures during refueling.

SPARK PLUG

If fouling occurs, check plug gap setting and overall condition, Proceed as follows:

1. Remove upper shroud. See Adjustment section for shroud removal instructions.
2. Clean area around spark plug to prevent dirt from entering engine. See figure 8.

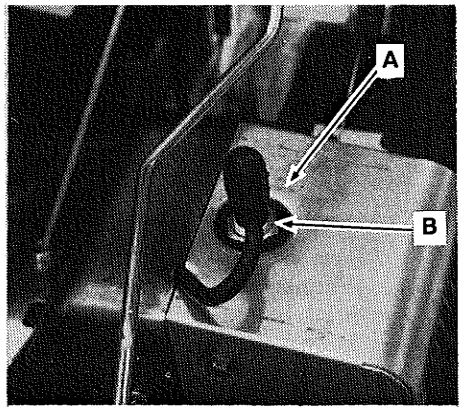


Figure 8

A. Clean Entire Area
B. Spark Plug

3. Remove plug wire. Remove spark plug with a 13/16 inch spark plug socket. Dry plug with a clean rag.

NOTE

A cracked, burnt, or badly fouled plug should be replaced. Never sandblast a plug, as grit can get into cylinder causing unnecessary wear.

4. Check plug setting with feeler gauge and regap electrodes to .035" (.89 mm). Reinstall plug and torque to 15 Ft. Lbs. (20.3 N•m).
5. Reinstall spark plug wire and upper shroud.

NOTE

If spark plug needs replacing, use Champion RJ-18Y or equivalent plug.

IN-SEASON STORAGE

When storing your snow thrower for short periods between snow removal jobs, be sure to clean the unit thoroughly. Also, it is best to store the snow thrower with the fuel tank full to prevent condensation in the tank. See "Filling the Fuel Tank" in the Pre-Start Preparation section to fuel your snow thrower. Be sure to leave 1/4 to 1/2 inch (6.4 to 12.7 mm) room at top of tank for fuel expansion during storage.

Store snow thrower in a clean, dry place away from heat, open flame, or spark. One good way to store the snow thrower is to hang it out of the way on a garage wall.

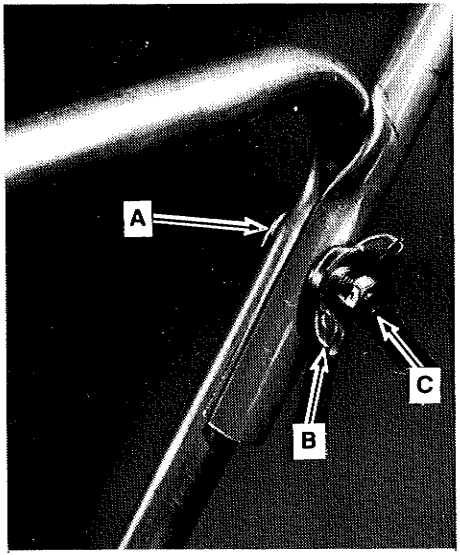


Figure 9 (see next page)

A. Handle bolt
B. Wing nut
C. Nut

The snow thrower handles can also be folded for compact storage, such as under a garage workbench. To fold handles, loosen the wing nuts holding handles (see figure 9). Loosen wing nuts fully. The nuts on handle bolts will keep wing nuts from being lost. Then fold upper handle back and down as shown in figure 10.

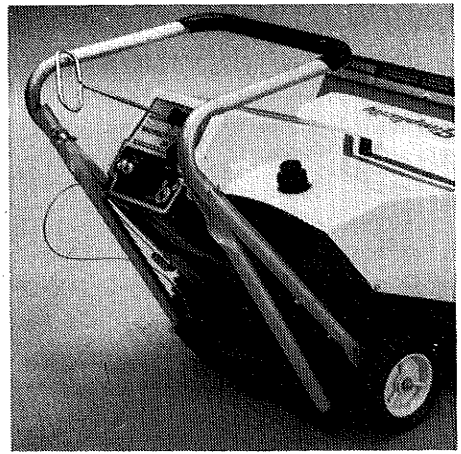


Figure 10

To return upper handle to operating position, raise it back into place. Be sure the cable for the impeller clutch control remains connected. Tighten wing nuts to secure handle.

OFF-SEASON STORAGE

If snow thrower is to be stored for over 30 days, prepare for storage as follows:

WARNING

Gasoline mixture in fuel tank is highly flammable. Drain fuel tank outdoors away from open flame or spark. Do not smoke while draining tank.

1. To drain fuel tank either:
   a. Remove fuel tank cap and tip snow thrower upside down to drain fuel into container, or:
   b. Remove fuel line at gas tank and drain fuel into container (see figure 11). See the Adjustment section to remove and reinstall the upper shroud. Be sure to remove cap and tip unit forward while draining tank. Reinstall fuel line.
2. Reinstall fuel tank cap and wipe up any fuel spills.
3. Try starting engine to run carburetor dry. Crank engine several times to be sure all fuel is gone.

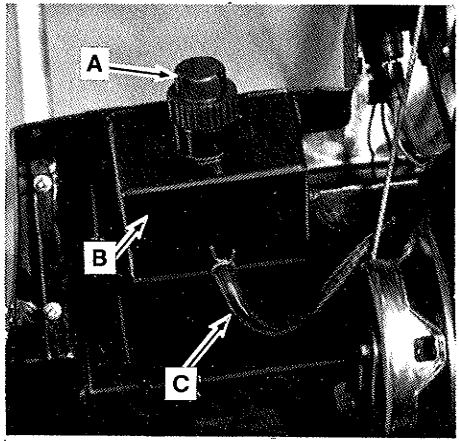


Figure 11

A. Fuel Tank Cap
B. Fuel Tank
C. Fuel Line

4. Pull rewind starter slowly until resistance is felt due to compression, then stop. Return starter rope slowly to prevent engine from reversing due to the compression. In this position both intake and exhaust ports are closed to prevent corrosion of the cylinder and piston.
5. Clean unit thoroughly.
6. Store snow thrower in a clean, dry place. Do not store unit in an attic, unventilated garage, or garden shed where temperatures can exceed 110° F. (43° C).
7. Cover unit if necessary for protection from dust and dirt or direct sunlight. For electric start models, store extension cord with unit to avoid losing it.

WARNING

Snow thrower fuel mixture and fumes are highly flammable in an enclosed area. Do not store snow thrower in house or basement unless fuel tank has been completely drained and carburetor has been run dry.

STARTING AFTER STORAGE

When taking your snow thrower out of storage after an extended period, proceed as follows:

1. Reread this Operator's Manual to refamiliarize yourself with safety rules, controls, and proper operating procedures.

2. Fuel snow thrower. See Pre-Start Preparation section.
3. Start snow thrower outdoors and test all controls.
4 For any problems that occur during testing, see the Service Information and Adjustment sections of this manual.

IDLER PIVOT LUBRICATION

Once a year it is recommended that you lubricate the idler pulley pivot to help ensure smooth engaging and disengaging of the impeller. It is a good idea to check this pivot lubrication at the same time you are checking the drive belt or belt stop adjustment. To lubricate idler pulley pivot, proceed as follows:

1. Remove the belt guard. See the Adjustment section for removal instructions.
2. Put a drop or two of oil on each side of the idler pulley arm at the pivot stud. See figure 12. Keep oil off drive belt.
3. Engage and disengage impeller control several times to work oil under idler arm.

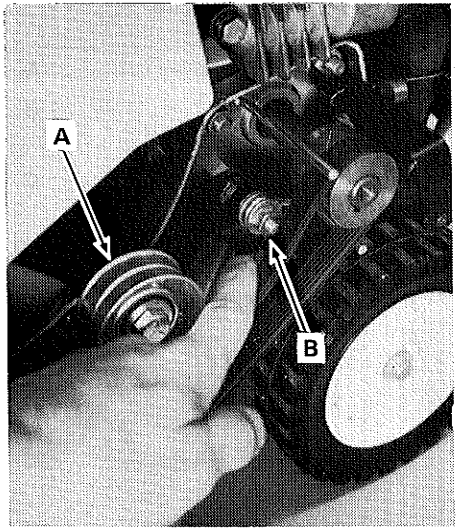


Figure 12

A. Idler Pulley
B. Pivot Stud

4. Wipe up any excess oil which could get on drive belt.
5. Reinstall belt guard.

Service Information

This section contains both troubleshooting information for most minor problems and also service information for parts which may wear out or break after extended use. Locate the information you need and follow all instructions in the order given.

WARNING

To avoid serious injury, stop engine before performing maintenance. Always remove the key to prevent accidental starting.

TROUBLESHOOTING

Troubleshooting procedures are provided in figure 13. First locate the problem description that best fits the trouble you have encountered. Check the possible causes in the order they are listed. Correct any problems and try to operate the snow thrower again to see if you have eliminated the trouble.

Problem	Cause/Remedy
1. Engine fails to start	**A.** Key off. Turn key to "ON."
	B. Out of fuel (engine can be out even when some fuel remains in tank). Fill fuel tank.
	C. Choke not "ON". Pull choke out and prime engine. See Operation section.
	D. Engine flooded. Move choke to "OFF" and try starting engine again.
	E. Water in fuel. Drain tank and refill with fresh fuel.
	F. Old stale gas. Drain tank and refill with fresh fuel.
	G. Snow or ice buildup on carburetor choke plate. Clear out carburetor intake area.
	H. Ice in fuel line. Remove fuel line and clean out ice.
2. Engine starts hard or runs poorly	**A.** Fuel mixture too rich. Take choke "OFF."
	B. Gas/oil mixture incorrect or unmixed. Shake fuel supply can or mix new fuel carefully.
	C. Spark plug fouled or poorly gapped. See Normal Care section.

Figure 13

	D.	Carburetor adjusted incorrectly. See the Adjustment section or your Tecumseh dealer.
	E.	Snow or ice buildup on carburetor choke plate. Clear out carburetor intake.
3. Impeller does not rotate	A.	Impeller control not engaged. Engage impeller control.
	B.	Foreign material blocking impeller. STOP engine. REMOVE key. Unplug impeller housing.
	C.	Impeller clutch adjustment incorrect. See Adjustment section.
	D.	Drive belt slipping, broken, or blocked. Check belt area for debris. Replace belt as necessary.
4. Impeller rotates but snow not thrown far enough	A.	Vanes blocked. STOP engine. REMOVE key. Clean out ice and snow.
	B.	Overloading snow thrower. Take less than full cut in deep or wet snow. DON'T force unit in deep snow.
5. Poor cleaning of ground surface.	A.	Hard snow or down pressure on handle raising paddles. Lift handle slightly so paddles contact suface fully.

Figure 13 (Cont'd)

DRIVE BELT REPLACEMENT

To replace the impeller drive belt, first remove the belt guard (see figure 17, Adjustment section).

Next remove the fixed belt stop (item A, figure 14). Pull outward on fixed stop with pliers if necessary.

Then remove the drive belt from under the idler pulley to provide slack (see figure 14). Slip drive belt from under engine pulley belt stops and off engine pulley. Finally, remove drive belt from impeller pulley.

NOTE

Check all pulleys for nicks, burrs, or sharp edges which will decrease belt life. File smooth any rough spots. Any bent or damaged pulley should be replaced.

Reinstall drive belt in reverse order of its removal. Be sure to reinstall fixed belt stop (item A, figure 14) when belt is in place.

Check belt stop adjustment and drive belt tension according to the Adjustment section. Reinstall belt guard according to Adjustment section instructions.

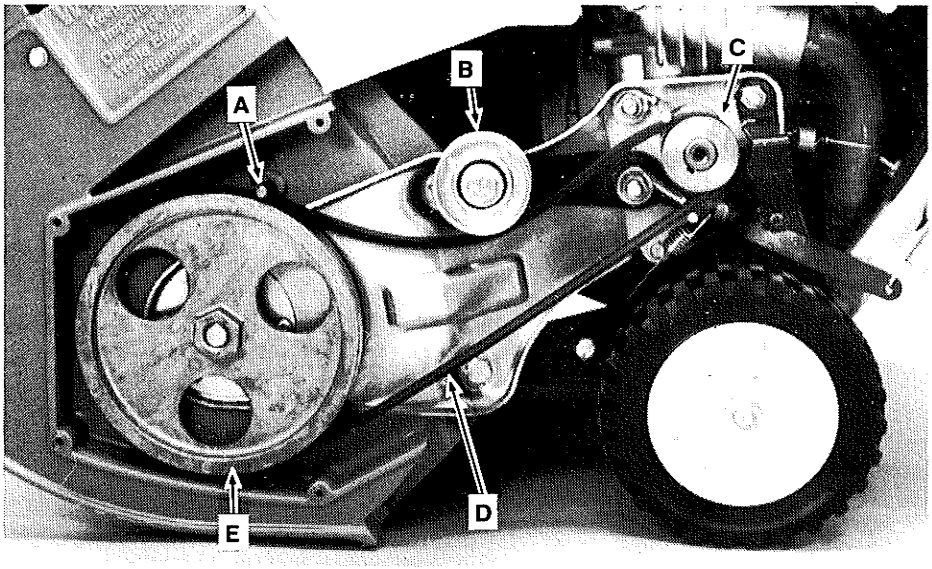


Figure 14

A. Fixed Belt Stop
B. Idler Pulley
C. Engine Pulley
D. Drive Belt
E. Impeller Pulley

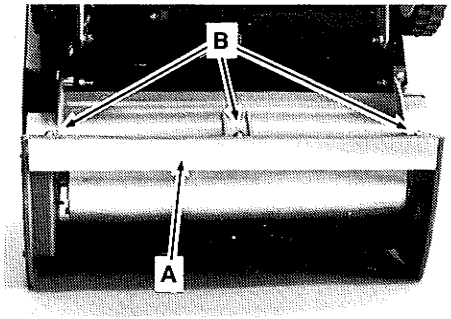


Figure 15
(Viewed from underneath)
A. Scraper Bar
B. Hex Head Screws with Plain Washers

SCRAPER BAR

To replace a worn or damaged scraper bar, remove the three hex head screws with plain washers from rear of scraper bar. See figure 15. Install new scraper blade with original hardware and torque screws to 15 In. Lbs. (1.7 N·m).

VANE REPLACEMENT

If a directional vane works loose or is damaged, replace it as follows:

1. Remove the three hex head screws from the front molding strip. See figure 16.

2. Pull the molding strip off the impeller housing.

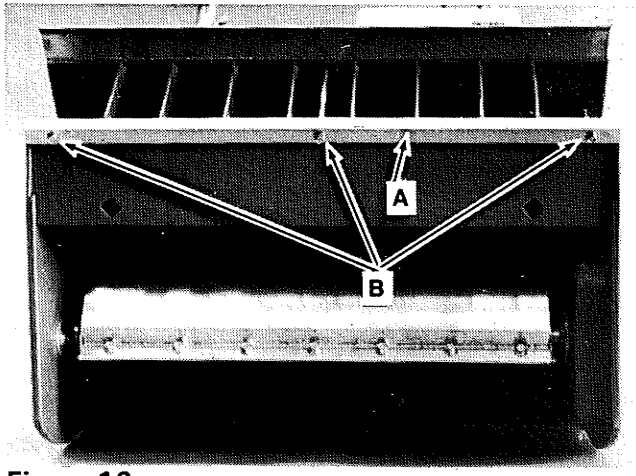


Figure 16

A. Front Molding Strip
B. Hex Head Screws

3. Install new vane with notched corner to bottom (check other vanes if unsure). Reinstall molding strip and tighten screws. Be careful not to cross thread screws or strip out plastic screw holes. Torque screws to 20 In. Lbs. (2.2 N·m).

Adjustments

This section contains adjustment procedures for your snow thrower. All of these adjustments are preset at the factory and should not have to be readjusted until your snow thrower has been used for some time.

WARNING

To avoid serious injury, stop engine before making any adjustment. Always remove the key to prevent accidental starting.

For access to some of the adjustment points it is necessary to remove the belt guard and the upper shroud. The adjustment instructions will refer you back to the following headings when it is necessary to remove the belt guard or upper shroud.

Removing Belt Guard

To remove the belt guard, remove the 5/8" (15.8 mm) long hex head screw with lockwasher from rear of guard. See figure 17. Then remove the remaining four 1/2" (13 mm) long hex head screws holding the guard Remove guard.

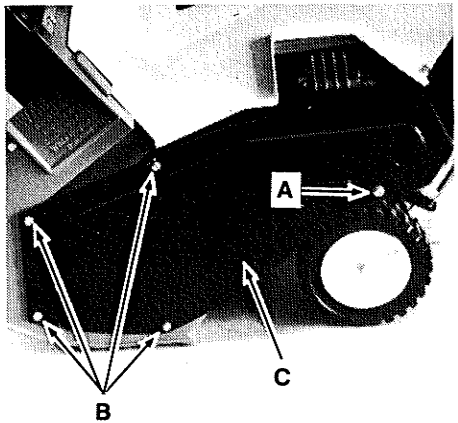


Figure 17

A. Hex Head Screw (5/8" long) with Lockwasher
B. Hex Head Screws (1/2" long)
C. Belt Guard

When reinstalling the belt guard be sure the long (5/8") hex head screw is in the rear hole. See figure 17. The four 1/2" screws should be torqued to 20 In. Lbs. (2.2 N·m).

Removing Upper Shroud

The upper shroud is held in place by six 5/8" (15.8 mm) long hex head screws (see figures 18 and 19). Two of these screws are located behind the directional vanes (see figure 18).

To remove the upper shroud, remove the

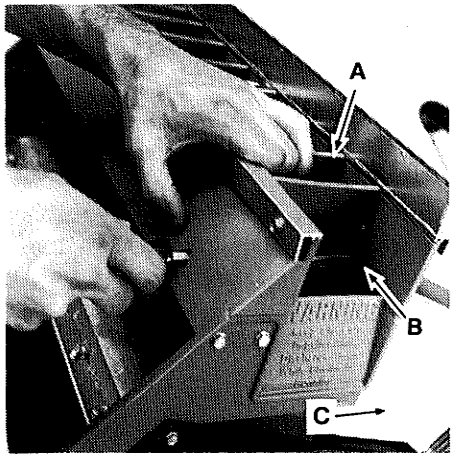


Figure 18

A. Directional Vanes
B. Hex Head Screw (5/8" long)
C. Upper Shroud

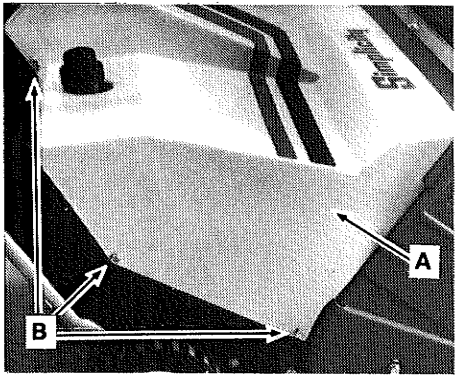


Figure 19

A. Upper Shroud
B. Hex Head Screws (5/8" long) (fourth screw on left side)

two screws behind the vanes first. To do this, turn the vanes for a right or left side discharge to expose the screws (see figure 18). The screws can be removed using either a socket or a screwdriver (screw heads are slotted). When the screw is removed from one side turn the vanes for the opposite side discharge and remove the second screw.

Remove the remaining four screws holding the upper shroud, unscrew the fuel tank cap, and lift the shroud free of the unit. Reinstall the fuel cap before proceding to adjustment or maintenance.

To reinstall the upper shroud remove the fuel cap again. Then align the grooves on the inside edge of the upper shroud with the dash, and slide the shroud into place on the unit. Reinstall fuel cap. Reinstall the two screws behind the vanes first and then the other four screws. DO NOT OVERTIGHTEN SCREWS.

ADJUSTMENT PROCEDURES

Belt Stops

The two belt stops at the engine pulley (see figure 20) help to stop the drive belt when the impeller clutch control is released. To function properly, these belt stops should be adjusted for a .06 inch (1/16" or 1.6 mm) clearance from the drive belt when the impeller clutch is *engaged.* To check or adjust belt stops, proceed as follows:

1. Remove belt guard. Refer to beginning of this section.
2. Engage the impeller control to tighten the drive belt. With the belt tight the gap between the belt stop and the belt should be .06 inch (1/16"). See figure 20.

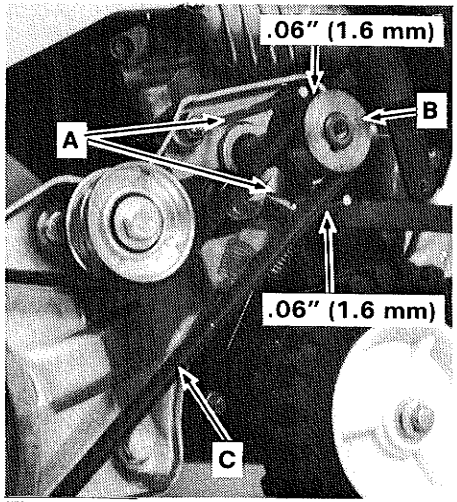


Figure 20

A. Belt Stops
B. Engine Pulley
C. Drive Belt

3. If not, loosen the locknut holding belt stop. Set the belt stop for a .06 inch gap with impeller control engaged and hold belt stop in place while retightening the locknut. Torque locknuts to 16 Ft. Lbs. (21.7 N·m). Be sure both belt stops are adjusted properly.

4. The fixed belt stop at the impeller pulley functions the same as the engine pulley belt stops, but it is not adjustable. See figure 21. Always be sure this belt stop is in place. It must be replaced if lost.

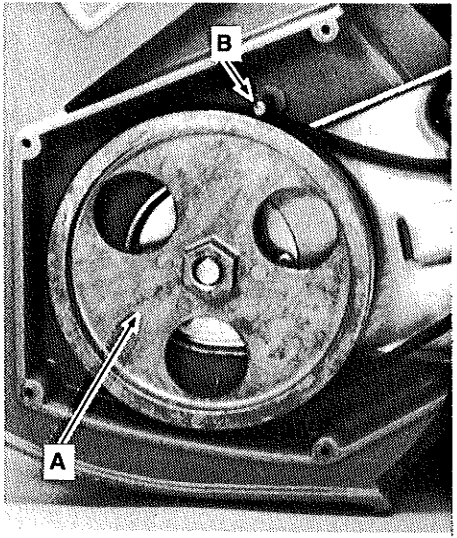


Figure 21

A. Impeller Pulley
B. Fixed Belt Stop

5. Reinstall belt guard.

Drive Belt Tension

The tension for the impeller drive belt is determined by the impeller control clutch spring (see figure 22). When properly adjusted the clutch spring measures from 1-7/8 to 2-1/8 inches (47.8 to 53.8 mm).

To check or adjust clutch spring, proceed as follows:

1. Engage impeller control on the handle (squeeze fully against handle).
2. While keeping impeller control engaged, measure the clutch spring. If the spring measures between 1-7/8 to 2-1/8 inches, it is properly adjusted.
3. If not, loosen the screw in the wire clamp on the clutch cable (see figure 22). Then lengthen or shorten the clutch cable until the spring measures the proper distance. Hold the two portions of the cable still and retighten the wire clamp.
4. Recheck the measurement (clutch engaged), and readjust as necessary.

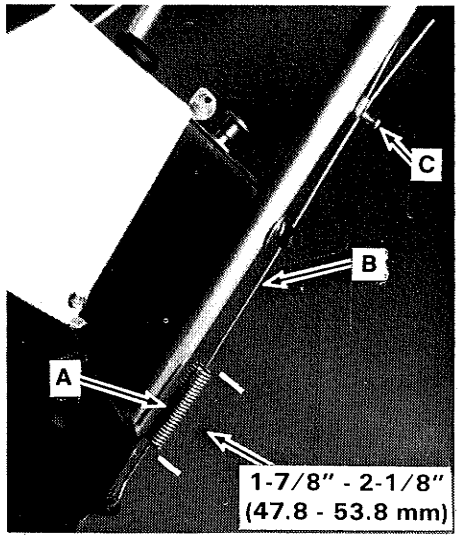


Figure 22

A. Clutch Spring
B. Clutch Cable
C. Wire Clamp

Carburetor Adjustment

Initial carburetor adjustments are made by Tecumseh, and they are satisfactory for most conditions. Do not make unnecessary

carburetor adjustments. If adjustment does become necessary, proceed as follows:

NOTE

Adjust carburetor at same temperature engine will be used. Adjustments made in above freezing temperatures will be too lean for below freezing operation.

1. Remove upper shroud from snow thrower. Refer to beginning of this section.

NOTE

Close adjusting screws only fingertight. Overtightening can damage carburetor screws or seats.

2. Set the carburetor adjustment screws for a normal mixture (see figure 23). The high speed mixture adjustment screw (item A) should be set at one (1) turn open from its closed position. The low speed mixture adjustment screw (item B) should be set at one (1) turn open from its closed position. The settings are approximate but will allow the engine to be started.
3. Start the engine and let it warm up for 3-5 minutes. Never adjust carburetor when engine is cold.

WARNING

For your personal safety, note that you will be making adjustments very near the engine exhaust pipe. The temperature of the exhaust pipe can exceed 150° F (65.5° C). Use extreme care to avoid touching exhaust pipe.

4. Locate the throttle lever and hold it against the idle speed screw (items C and D). This can be done using a small wire with a hook at one end. The throttle lever must be held against the idle speed screw for low speed adjustment or *all* adjustments will be incorrect.
5. With engine idling and throttle lever held against idle speed screw, turn the low speed adjustment screw (item B) slowly clockwise until engine falters. Remember this location. Now turn low speed screw counterclockwise until engine just starts to sputter. Remember this location.

   Then turn the low speed screw clockwise again until halfway between the first position where the engine faltered and the last position where the engine started to sputter. This point is the optimum low speed setting for the carburetor.
6. Release the throttle lever (item C) and let the engine run at governed speed.

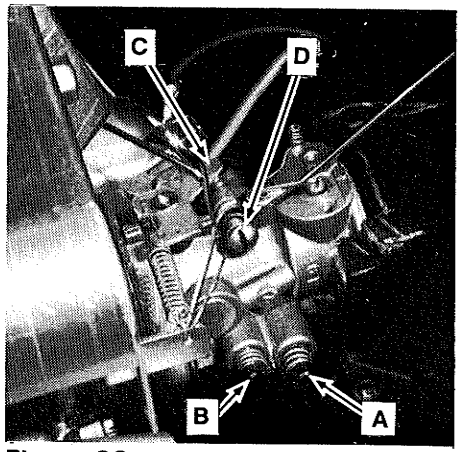


Figure 23

A. High Speed Mixture Adj. Screw
B. Low Speed Mixture Adj. Screw
C. Throttle Lever
D. Idle Speed Regulating Screw

7. The high speed adjustments are made basically the same as the low speed adjustments, with the exception of test settings being made 1 8 turn at a time.

   Turn the high speed adjustment screw (item A) 1 8 turn both clockwise and counterclockwise from the manual setting, testing each setting by actually throwing snow. The engine must be tested under a load for an accurate high speed setting. Test each setting until the optimum high speed setting is obtained.

8. Stop engine and remove key. Clean all snow from engine area and vane control linkage.

9. Reinstall upper shroud according to instructions at the beginning of this section.

CAUTION

Never tamper with engine governor which is factory set for proper engine speed. Overspeeding the engine can increase the chance of personal injury and will void engine warranty. If you think governor needs adjusting, see your nearest Simplicity or Tecumseh service dealer.

Snowbuster 220 Specifications

Engine

Make: Tecumseh
Model No.: AH520
Type: 1591
Horsepower: 2-1/4 (1.67 kW)
Cycles: 2
Cylinders: 1
Crankshaft: Horizontal
Bore: 2.09 In. (53 mm)
Stroke: 1.50 In. (38 mm)
Displacement: 5.2 Cu. In. (85.2 cm^3)
Ignition: Flywheel Magneto with Key Switch
Governor: Mechanical Air Vane
Choke: Manual, On Control Panel
Primer: Manual, On Control Panel
Starter: Manual, Rewind Starter (all models)
Optional 110 V. AC Electric Start Models
Fuel Tank: 1 Quart (.95 L)
Fuel Mixture: 32:1
Muffler: Integral Part of Frame

Frame

Construction: Heavy Gauge Aluminum Alloy with Integral Steel Muffler
Wheels: 1-1/2 x 6 In. (38 x 152 mm), Staggered Bar Tread

Impeller Housing

Construction: Injection Molded Polymer
Effective Width: 20 In. (508 mm)
Opening Height: 9 In. (228.6 mm)
Discharge : 3 Positions — Right, Left, Forward
Scraper Bar: Wear Resistant Polymer

Impeller

Construction: Aluminum with 2 Replaceable Rubber Paddles
Diameter: 9" (228.6 mm)
Bearings: Self-Aligning Bronze Bushing and Sealed Ball Bearing

Impeller Drive

Type: Cushioning Belt Drive with Idler

Handles

Construction: 1 In. (25.4 mm) Heavy Wall Aluminum Alloy Tubing. Foldable for Storage and Transport

Controls

Throttle: Factory Adjusted RPM
Impeller Drive: Touch-O-Matic Impeller Control On Handle
Directional Vanes: Tee Handle On Control Panel

Dimensions

Length: 39 In. (990 mm)
Width: 20-3/4 In. (527 mm)
Height: 35 In. (889 mm) To Top Of Handle
Weight: Manual Start — 40 Lbs. (18.1 kg)
Electric Start — 44 Lbs. (19.9 kg)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

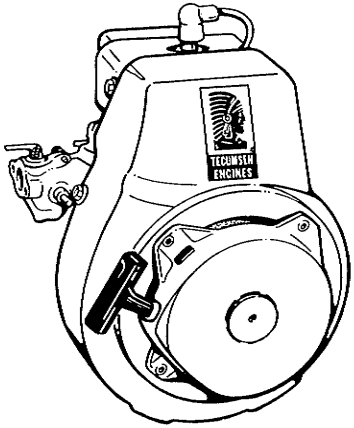
Maintenance Record

Date	Hours Used	Lubrication	Maintenance/Repair

Identification

Snow Thrower ID

ID located at rear of unit below control panel and fuel tank.



Engine ID

Type

ID located on metal tag near bottom of engine.

PARTS MANUAL AVAILABLE FOR SNOWBUSTER 220

You can order a parts manual for your snow thrower. To do so, fill out the form below and enclose it in an envelope with a check or money order for $2.00 made out to Simplicity. Address the envelope to:

Simplicity Manufacturing Co.
500 N. Spring Street
Port Washington, WI 53074

Parts manual TP-599 contains the Snowbuster 220 snow thrower (both manual and electric start models).

CUT HERE

☐ I would like a parts manual (TP-599) for my snow thrower. I am enclosing a check or money order for $2.00.

Snow Thrower Mfg. No. _____

(Allow Two or Three Weeks for Delivery)

Simplicity Manufacturing Co.
Attn: Customer Publications
500 N. Spring Street
Port Washington, WI 53074

(Print clearly, this will be your mailing label)

NAME _____

STREET OR RFD _____

CITY _____ STATE _____ ZIP _____

Simplicity Mfg. Co.
500 N. Spring Street
Port Washington, WI 53074